



Determination 2009/74

Determination regarding the code compliance of a seven year old house with monolithic cladding at 49 MacAndrew Road, Otautau, Southland



1. The matters to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners, S and J Evan (“the applicants”). The other party is the Southland District Council (“the authority”), carrying out its duties and functions as a territorial authority or building consent authority.
- 1.2 This determination arises from the decisions of the authority to issue a notice to fix and to refuse to issue a code compliance certificate for a seven year old house because it was not satisfied that the cladding, as installed to the house, complied with Clauses B2 and E2 of the Building Code²; (First Schedule, Building Regulations 1992).
- 1.3 In order to determine, in terms of section 177(b)(i) and (iii) of the Act³, whether the decisions of the authority to issue a notice to fix and to refuse to issue the code compliance certificate were correct, I must also consider, in terms of section 177(a), whether the external envelope of the house complies with Clauses B2 “Durability” and E2 “External Moisture” of the Building Code. The “external envelope” includes

¹ The Building Act 2004 is available from the Department’s website at www.dbh.govt.nz.

² The Building Code is available from the Department’s website at www.dbh.govt.nz.

³ In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

the cladding, its configuration and its components, junctions with other building elements, formed openings for windows, etc, penetrations, decks, parapets, and the proximity of building elements to the ground.

- 1.4 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Department to advise on this dispute (“the expert”), and other evidence in this matter.

2. The building work

- 2.1 The house is a single storey house that is situated on a large flat site in a medium wind zone for the purposes of NZS 3604⁴. The house foundation consists of a concrete pile foundation with anchor piles and the house is constructed with a timber frame. The exterior wall cladding is monolithic with aluminium joinery and a steel pitched roof. The monolithic cladding is a two coat stucco plaster system over 4.5mm fibre-cement sheet (“the stucco plaster cladding”). Mesh is installed 4-5mm into the plaster as reinforcing.
- 2.2 The expert (refer to paragraph 5) noted the external wall framing was observed to be untreated Douglas fir and therefore is not treated to a level that will provide any resistance to decay.

3. Background

- 3.1 The authority issued a building consent for the house (No 21317) on 11 January 2001. I have not seen any records of inspections carried out during construction. It appears that construction may have been completed some time in early 2002, as there is an electrical certificate of compliance dated 27 February 2002.
- 3.2 On 28 July 2004 the authority noted that subsequent to a recent follow-up inspection there were a number of items requiring further work. The authority also issued a notice to rectify because it was of the view that the building work did not comply with Clause E2.
- 3.3 I note the letter from the authority dated 28 July 2004 also states:
- Field notes from the inspector involved on the project indicate that there were no inspections requested during the construction of the residence. ...notes do show progress inspections were carried out at foundation and framing stage whilst passing despite no official requests for inspection. Subsequent to the framing there is nothing noted for inspection of the [stucco plaster] cladding system in terms of head/sill/side flashings, building paper slip layer, netting reinforcement or control joint placement.
- 3.4 The authority wrote to the applicant on 6 January 2005, referring to a 23 November 2004 inspection. It appears that the applicants provided photographs to the authority detailing the various stages of construction. The authority noted concerns about the stucco plaster cladding with respect to the manufacturers requirements and stated:
1. Although head flashings have obviously been fitted to openings in the cladding system, the aluminium sill tray/plaster capping... does not seem to have been fitted.
 2. The photograph record raises concerns whether the jamb flashings... have been fitted also.
 3. Although the completed [stucco plaster cladding] system seems sound with no obvious signs of uncontrolled cracking, there are concerns about the adequacy of spacing of the netting reinforcement... Appropriate spacing of reinforcing mesh is not evident in the construction photographs.

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 3.5 On 8 August 2008, the authority wrote to the applicant in response to their enquiry about the issuing of a code compliance certificate for the house. The authority noted that their records indicated most of the compliance issues had been resolved, but the principal compliance issues relating to the stucco plaster cladding still exist. The authority also issued a notice to fix, dated 6 August 2008, citing contraventions of Clauses E2 and B2 and re-stating the non compliances of the 6 January 2005 letter (refer to paragraph 3.4).
- 3.6 The Department received an application for a determination on 5 June 2009.

4. The submissions

- 4.1 The applicant forwarded copies of some photos of the construction of the house, correspondence between the authority and the applicant, and some of the consent documentation that included plans, calculations and specifications.
- 4.2 A copy of the application was provided to the authority, which made no submission in response.
- 4.3 A draft determination was issued to the parties for comment on 12 August 2009. The parties accepted the draft without comment.

5. The expert's report

- 5.1 As mentioned in paragraph 1.4, I engaged an independent expert to provide an assessment of the condition of those building elements subject to the determination. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 21 July 2009 and furnished a report that was completed on 24 July 2009.
- 5.2 The expert carried out invasive moisture readings internally and externally, and noted the following elevated readings. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

Location		Details	Reading
North elevation	Internal	Right side sill bedroom 2 window	22.5%
North elevation	Internal	Left side sill bedroom 2 window	20.2%
South elevation	Internal	Right side sill bathroom window	18.1%
North elevation	External	Left side jamb/sill junction bay window	28.3%
North elevation	External	Right side jamb/sill junction bay window	32.8%
North elevation	External	Left side jamb/sill junction bedroom 2 window	22.1%
West elevation	External	Left side jamb/sill junction of top bedroom 3 window	20.1%
West elevation	External	Right side jamb/sill junction of top bedroom 3 window	31.6%
West elevation	External	Left side jamb/sill junction of bedroom 3 window	25.1%
West elevation	External	Right side jamb/sill junction of bedroom 3 window	26.5%
South elevation	External	Left side jamb/sill junction of bathroom window	22.6%
South elevation	External	Left side at base below bathroom window	20.1%

- 5.3 The expert noted that at the locations of the internal elevated invasive moisture readings (refer to paragraph 5.2) the framing was soft and appeared to be decayed.
- 5.4 The expert carried out a destructive test to the lower left corner of the bedroom window on the west elevation and noted that while the plaster mix ratio was not tested, when the cut out was removed the plaster was completely wet throughout and delaminated at the first coat. The expert also observed the building paper slip joint was deteriorated, there was black mould on the fibre-cement sheet, the staples were corroded, the untreated timber framing was showing signs of early decay, and the fibre glass bats were wet.
- 5.5 The expert observed there is widespread vertical cracking at window junctions, below window openings and horizontal cracking near the middle of the wall panels
- 5.6 The expert noted the stucco plaster system has not be applied in accordance with NZS 4251⁵ and that the following had not been complied with:
- the requirements for head, jamb, and sill flashings
 - the requirement for vertical control joints
 - the requirement for a three coat system.
- 5.7 A copy of the expert's report was provided to the parties on 24 July 2009.

6. Discussion

- 6.1 It is clear from the expert's report that the stucco plaster cladding installed on the house is unsatisfactory in terms of its weathertightness performance. The stucco plaster cladding has not been installed in accordance with NZS 4251 or the BRANZ Good practice guide for stucco⁶, and there is significant water penetration into the walls through defects in many locations, which has led to early timber decay. Consequently, I am satisfied the external envelope does not comply with Clause E2.
- 6.2 In addition, the parts of the building covered by this consent are also required to comply with the durability requirements of clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the house to remain weathertight. Because the external envelope faults in this building are allowing the ingress of moisture at present, the house does not comply with the durability requirements of Clause B2.
- 6.3 I find that, because of the extent of the faults that have been identified with the cladding, I am unable to conclude that remediation of the identified faults, as opposed to partial or full re-cladding, could result in compliance with Clause E2. I consider that final decisions on whether code compliance can be achieved by either remediation or re-cladding, or a combination of both, can only be made after a more thorough investigation of the cladding. This will require careful investigation and analysis by an appropriately qualified person. Once that decision is made, the chosen remedial option should be submitted to the authority for its comment and approval. The investigation should also involve the systematic survey of all risk locations, in order to determine the full extent of the repairs required to prevent further damage and to establish the extent of the timber damage already sustained.

⁵ New Zealand Standard NZS 4251:1998 Plaster thickness for rigid backings

⁶ BRANZ Good practice guide – stucco: 2004

7. What is to be done now?

- 7.1 The authority has issued a notice to fix citing contraventions of Clauses B2 and E2 of the Building Code, specifically referring to the lack of sill flashings, the lack of jamb flashings and the inadequacy of the spacing of the mesh reinforcement to the fibre-cement sheet. I am satisfied the building does not comply with the Building Code and that the authority made an appropriate decision to issue a notice to fix, however the notice to fix should be modified to take into account the findings of this determination.
- 7.2 A new notice to fix should be issued that requires the owners to bring the building work into compliance with the Building Code, identifying the items listed in paragraphs 5.3, 5.4 and 5.6 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. It is not for the notice to fix to stipulate directly how the defects are to be remedied and the house brought to compliance with the Building Code. That is a matter for the owner to propose and for the authority to accept or reject. Any outstanding items of disagreement can be referred to the Chief Executive for a further binding determination.
- 7.3 Once the matters set out in the notice to fix have been rectified to its satisfaction, the authority, on application, may issue a code compliance certificate. Consideration of a code compliance certificate will raise the matter of when all the elements of the building complied with Clause B2, given the age of the building work.
- 7.4 The authority has the power to grant an appropriate modification to the Building Code, on application, to the effect that Clause B2.3.1 applies from the date when all the building elements were installed in the house, apart from the items that are to be rectified as described in this determination. A date in early 2002 would appear to be appropriate (refer to paragraph 3.1).

8. The decision

- 8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:
- the external envelope of the house does not comply with Clauses E2 and B2, and
 - accordingly, I confirm the authority's decision to refuse to issue a code compliance certificate is correct, and
 - the authority's decision to issue the notice to fix is confirmed, however the authority is to modify the notice to fix to take into account the findings of this determination.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 3 September 2009.

John Gardiner
Manager Determinations